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(54) PRODUCTION OF LOWER OLEFIN

(57)Abstract:

PROBLEM TO BE SOLVED: To suppress the formation of a by-product at an industrially advantageous low temperature and efficiently produce the objective compound in high selectivity by using a catalyst containing a specific amount of a rare earth element supported on a zeolite when catalytically cracking a hydrocarbon.

SOLUTION: A $\geq 2\text{C}$ hydrocarbon raw material is brought into contact with a catalyst supporting a rare earth element in an amount of 0.4-20 expressed in terms of atomic ratio to the aluminum in a crystalline aluminosilicate zeolite thereon. The hydrocarbon raw material is preferably subjected to dehydrogenating treatment and then brought into contact with the catalyst to improve the yield. ZSM-5 or ZSM-11 or both are preferred as the zeolite. Lanthanum, cerium and the like are preferred as the rare earth element. The catalyst preferably further contains 0.1-10 wt.% phosphorus supported thereon. The catalytic cracking reaction is preferably carried out in the presence of steam at 600-700° C.

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